

[4910-13-U]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [66 FR 27017 5/16/2001]

[Docket No. 2000-NE-42-AD; Amendment 39-12229; AD 2001-10-03]

RIN 2120-AA64

**Airworthiness Directives; General Electric Company CF34 Series Turbofan Engines**

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Final rule; request for comments.

**SUMMARY:** This amendment adopts a new airworthiness directive (AD) that is applicable to General Electric Company (GE) CF34-1A, -3A, -3A1, -3A2, -3B, and -3B1 turbofan engines. This action requires a one-time inspection, and if necessary replacement of certain fan disks for electrical arc-out indications, and assigns a reduction in the life limit of certain fan disks. This amendment is prompted by a report of a crack that was found during a visual inspection as part of routine engine maintenance. The actions specified in this AD are intended to prevent rupture of the fan disk due to cracks that initiate at an electrical arc-out, which could result in an uncontained failure of the engine.

**DATES:** Effective May 31, 2001. The incorporation by reference of certain publications listed in the rule is approved by the Director of the Federal Register as of May 31, 2001.

Comments for inclusion in the Rules Docket must be received on or before July 16, 2001.

**ADDRESSES:** Submit comments in triplicate to the Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 2000-NE-42-AD, 12 New England Executive Park, Burlington, MA 01803-5299. Comments may also be sent via the Internet using the following address: "9-ane-adcomment@faa.gov." Comments sent via the Internet must contain the docket number in the subject line.

The service information referenced in this AD may be obtained from GE Aircraft Engines, 1000 Western Avenue, Lynn, MA 01910; Attention: CF34 Product Support Engineering, Mail Zone: 34017; telephone (781) 594-6323; fax (781) 594-0600. This information may be examined at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

**FOR FURTHER INFORMATION CONTACT:** Eugene Triozzi, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone 781-238-7148; fax 781-238-7199.

**SUPPLEMENTARY INFORMATION:** The FAA has received a report of a crack at one of the fan blade installation pin holes in a GE CF34-3A1 engine fan disk. The crack was found during a visual inspection that was being conducted as part of routine engine maintenance. Crack initiation sites, consisting of small zones of melted and resolidified metal, have been discovered on fan disk surfaces. Three additional burned zones were observed adjacent to the crack site, but crack propagation at those sites did not occur because they were at lower stress locations. Metallurgical examination determined that these defects were a result of inadvertent contact by electrical probes used during an electrochemical etching procedure during manufacture. The defect is being referred to as electrical arc-out. These crack initiation sites may have occurred at fan disk surface locations accessible during part marking. Stress and life analyses conducted by the manufacturer show that if these sites occur at

high-stress locations on disks, then crack propagation and rupture may occur before the part reaches its published low-cycle fatigue removal life. Also, some disks have manufacturing records that indicate blending, possibly of arc-outs, was performed at initial manufacture. This is referred to as a blended callout. Because arc-outs that may have occurred on these disks may have been blended away, these disks can not be reliably inspected for arc-out using the visual methods developed for other disks. Therefore, these disks must be removed from service. This condition, if not corrected, could result in rupture of the fan disk due to cracks that initiate at an electrical arc-out, which could result in an uncontained failure of the engine.

#### **Manufacturer's Service Information**

The FAA has reviewed and approved the technical contents of GE Aircraft Engines (GEAE) Alert Service Bulletin (ASB) CF34-BJ 72-A0088, Revision 1, dated October 30, 2000; and ASB CF34-AL 72-A0103, dated August 4, 2000. These ASB's provide procedures for inspections of certain disks for electrical arc-out indications, and if necessary, replacement of the disk with a serviceable disk.

#### **Requirements of This AD**

Since an unsafe condition has been identified that is likely to exist or develop on other CF34-1A, -3A, -3A1, -3A2, -3B, and -3B1 turbofan engines of the same type design, this AD is being issued to prevent rupture of the fan disk due to cracks that initiate at an electrical arc-out. This AD requires an inspection of fan disks P/N's 5921T18G01, 5921T18G09, 5921T18G10, 5921T54G01, 5922T01G02, 5922T01G04, 5922T01G05, 6020T62G04, 6020T62G05, 6078T00G01, 6078T57G01, 6078T57G02, 6078T57G03, 6078T57G04, 6078T57G05, and 6078T57G06 for electrical arc-out indications and, if necessary, replacement of the fan disk with a serviceable disk. This AD also requires replacement of certain fan disks with blended callouts that are listed by P/N and SN in this AD before achieving a new reduced life limit. The inspection and replacement must be done in accordance with the alert service bulletins described previously.

#### **Differences Between the Manufacturer's Service Information and This AD**

Although fan disk P/N 5922T01G02 is not specified by ASB CF34-BJ 72-A0088, Revision 1, dated October 30, 2000, fan disk P/N 5922T01G02 is subject to the requirements specified in this AD.

#### **Immediate Adoption of This AD**

Since a situation exists that requires the immediate adoption of this regulation, it is found that notice and opportunity for prior public comment hereon are impracticable, and that good cause exists for making this amendment effective in less than 30 days.

#### **Comments Invited**

Although this action is in the form of a final rule that involves requirements affecting flight safety and, thus, was not preceded by notice and an opportunity for public comment, comments are invited on this rule. Interested persons are invited to comment on this rule by submitting such written data, views, or arguments as they may desire. Communications should identify the Rules Docket number and be submitted in triplicate to the address specified under the caption "ADDRESSES." All communications received on or before the closing date for comments will be considered, and this rule may be amended in light of the comments received. Factual information that supports the commenter's ideas and suggestions is extremely helpful in evaluating the effectiveness of the AD action and determining whether additional rulemaking action would be needed.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify the rule. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report that summarizes each FAA-public contact concerned with the substance of this AD will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket Number 2000-NE-42-AD." The postcard will be date stamped and returned to the commenter.

## **Regulatory Impact**

This final rule does not have federalism implications, as defined in Executive Order No. 13132, because it would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Accordingly, the FAA has not consulted with state authorities prior to publication of this final rule.

The FAA has determined that this regulation is an emergency regulation that must be issued immediately to correct an unsafe condition in aircraft, and is not a “significant regulatory action” under Executive Order 12866. It has been determined further that this action involves an emergency regulation under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979). If it is determined that this emergency regulation otherwise would be significant under DOT Regulatory Policies and Procedures, a final regulatory evaluation will be prepared and placed in the Rules Docket. A copy of it, if filed, may be obtained from the Rules Docket at the location provided under the caption “ADDRESSES.”

## **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

## **Adoption of the Amendment**

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

## **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

### **§39.13 [Amended]**

2. Section 39.13 is amended by adding the following new airworthiness directive:

# AIRWORTHINESS DIRECTIVE



Aircraft Certification Service  
Washington, DC

U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

*We post ADs on the internet at "av-info.faa.gov"*

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

**2001-10-03 General Electric Company: Amendment 39-12229. Docket 2000-NE-42-AD.**

## Applicability

This airworthiness directive (AD) is applicable to General Electric Company (GE) CF34-1A, -3A, -3A1, -3A2, -3B, and -3B1 turbofan engines with fan disk part numbers (P/N's) 5921T18G01, 5921T18G09, 5921T18G10, 5921T54G01, 5922T01G02, 5922T01G04, 5922T01G05, 6020T62G04, 6020T62G05, 6078T00G01, 6078T57G01, 6078T57G02, 6078T57G03, 6078T57G04, 6078T57G05, and 6078T57G06 installed. These engines are installed on but not limited to Bombardier, Inc. Canadair airplane models CL-600-2A12, -2B16, and -2B19.

**Note 1:** This AD applies to each engine identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For engines that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (e) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

## Compliance

Compliance with this AD is required as indicated, unless already done.

To prevent rupture of the fan disk due to cracks that initiate at an electrical arc-out, which could result in an uncontained failure of the engine, do the following:

## Removal of Certain Fan Disks from Service

(a) On disk P/N's 5921T18G01, 5921T18G09, 5921T18G10, 5921T54G01, 5922T01G02, 5922T01G04, 5922T01G05, 6020T62G04, 6020T62G05, 6078T00G01, 6078T57G01, 6078T57G02, 6078T57G03, 6078T57G04, 6078T57G05, and 6078T57G06, that are listed by P/N and serial number (SN) in the following Table 1 of this AD and that have less than 8,000 cycles-since-new (CSN) on the effective date of this AD, replace fan disk P/N's before accumulating 8,000 CSN:

**Table 1. Fan Disks that Require Removal Based on Blended Callouts**

| Disk Part Number | Disk Serial Number |
|------------------|--------------------|
| 6078T57G04       | GEE09287           |
| 6078T00G01       | GAT3860G           |
| 6078T57G02       | GAT1924L           |
| 5922T01G04       | GAT9599G           |

| <b>Disk Part Number</b> | <b>Disk Serial Number</b> |
|-------------------------|---------------------------|
| 6078T57G04              | GEE05831                  |
| 6078T57G04              | GEE06612                  |
| 6078T57G04              | GEE06618                  |
| 6078T57G04              | GEE06974                  |
| 6078T57G04              | GEE06980                  |
| 6078T57G05              | GEE143FY                  |
| 6078T57G05              | GEE1453G                  |
| 6078T57G05              | GEE14452                  |
| 6078T57G05              | GEE145NA                  |
| 6078T57G04              | GEE08086                  |
| 6078T57G04              | GEE09287                  |
| 6078T57G04              | GEE09337                  |
| 6078T57G05              | GEE12720                  |
| 6078T57G05              | GEE14214                  |
| 6078T57G05              | GEE142YT                  |
| 6078T57G05              | GEE146GT                  |

(b) For disks with SN's listed in Table 1 of this AD that have 8,000 CSN or greater on the effective date of this AD, replace the disk within 30 days after the effective date of this AD.

#### **Inspection of All Other Fan Disks**

(c) Inspect all other fan disks, P/N's 5921T18G01, 5921T18G09, 5921T18G10, 5921T54G01, 5922T01G02, 5922T01G04, 5922T01G05, 6020T62G04, 6020T62G05, 6078T00G01, 6078T57G01, 6078T57G02, 6078T57G03, 6078T57G04, 6078T57G05, and 6078T57G06 in accordance with paragraphs 3.A.(1) through 3.E.(2) of the Accomplishment Instructions of Alert Service Bulletin (ASB) CF34-BJ 72-A0088, Revision 1, dated October 30, 2000 or paragraphs 3.A.(1) through 3.A.(2)(f) of the Accomplishment Instructions of ASB CF34-AL 72-A0103, dated August 4, 2000. Use the compliance times specified in the following Table 2:

**Table 2. Fan Disk Inspection Compliance Times**

| <b>Fan Disk Operating CSN</b>                              | <b>Inspect by</b>  |
|--|--|
| (3) Fewer than 8,000 CSN on the effective date of this AD. | Before accumulating 8,000 CSN or by the next hot section inspection after the effective date of this AD, whichever occurs earlier. |
| (4) 8,000 CSN or greater on the effective date of this AD. | Within 120 days after the effective date of this AD.   |

#### **Definitions**

(d) For the purposes of this AD, the following definitions apply:

(1) A serviceable fan disk is defined as a fan disk that has been inspected as specified in paragraph (c) of this AD and is not listed in Table 1 of this AD.

(2) Cycles-since-new for fan disk P/N's 5922T01G04 or 5922T01G05 is defined as total cycles accrued since new as P/N 6078T57G02 or 6078T57G03, added to total cycles accrued after modification from P/N 6078T57G02 or 6078T57G03.

### **Alternative Methods of Compliance**

(e) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Engine Certification Office (ECO). Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, ECO.

**Note 2:** Information concerning the existence of approved alternative methods of compliance with this airworthiness directive, if any, may be obtained from the ECO.

### **Special Flight Permits**

(f) Special flight permits may be issued in accordance with §§ 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the aircraft to a location where the requirements of this AD can be accomplished.

### **Documents That Have Been Incorporated by Reference**

(g) The actions specified in this AD must be done in accordance with the following GE alert service bulletins:

| <b>Document No.</b>  | <b>Pages</b> | <b>Revision</b> | <b>Date</b>      |
|----------------------|--------------|-----------------|------------------|
| ASB CF34-BJ 72-A0088 | All          | 1               | October 30, 2000 |
| Total pages: 15.     |              |                 |                  |
| ASB CF34-AL 72-A0103 | All          | Original        | August 4, 2000   |
| Total pages: 76.     |              |                 |                  |

These incorporations by reference were approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from GE Aircraft Engines, 1000 Western Avenue, Lynn, MA 01910; Attention: CF34 Product Support Engineering, Mail Zone: 34017; telephone (781) 594-6323; fax (781) 594-0600. Copies may be inspected at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW, suite 700, Washington, DC.

### **Effective Date of This AD**

(h) This amendment becomes effective on May 31, 2001.

**FOR FURTHER INFORMATION CONTACT:** Eugene Triozzi, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone 781-238-7148; fax 781-238-7199.

Issued in Burlington, Massachusetts, on May 7, 2001.

Francis A. Favara, Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.